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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,206	07/31/2003	Donald Matthew Burns	7095RGC-1-CIP	3255
22442	7590	12/15/2004	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			HASHMI, ZIA R	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/633,206

Applicant(s)

BURNS ET AL.

Examiner

Zia R. Hashmi

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/24/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-28 are rejected under U.S.C. 103(a) as being unpatentable over Fies et al. ( 4,214,160 ), in view of Schoen et al. ( 5,089,703 ).

3. With respect to independent claims 1 and 21 and dependent claims 2-3 & 18, Fies et al. disclose a method and apparatus to improve the filtering action of a quadrupole (Q) mass filter by reducing a precursor fault caused by an asymmetric electrical field between a pair of opposing electrode rods in a y-axis of the Q-mass filter, the apparatus comprising:  
processing means for processing detector data to determine the filtering action of the Q-mass filter by checking for a precursor fault ( Abstract, lines 1-10, col. 1, lines 56-68, col. 2, lines 1-6 & 50-61, and Fig. 4 ); and power supply to introduce an AC potential difference across the electrode rods in the y-axis, if a precursor fault is detected, in order to reduce asymmetry in the electrical field in the y-axis ( col. 1, lines 26-34 & 56-68, col. 2, lines 6-13, col. 3, lines 38-65, col. 4, lines 19-61, col. 5, lines 1-6 and claim 1, and V(DC) and V(RF) in Fig. 4, and partly in Fig. 3 ). The "precursor fault" mentioned above is understood here to refer to a fault of a Q-mass filter if it transmits ions of a

particular mass/charge ratio at voltages that are lower than the nominal AC and DC voltages.

Their power supply means comprise a DC potential divider to introduce an AC potential difference across the electrode rods in the y-axis ( points AA through Q, P, V(DC) to Y, and RF Generator in Fig. 3 & 4 ) with a control to the potential divider ( col. 4, lines 19-32 and col. 5, lines 3-6 ).

4. With respect to claims 1, 4, 6-17, and 19-28, Fies et al. fail to disclose power supply with control means to introduce an AC potential difference across the electrode rods. Schoen et al., however, disclose method and apparatus wherein electrodes are supplied power separately with control means to introduce AC potential difference across the electrode rods in the y-axis ( col. 19, lines 60-68, col. 20, lines 61-66, and U(ac), U(s), Y-dipole 28 in Fig. 9 ).

It would have been obvious to one having ordinary skill at the time of the invention was made to combine methods and apparatus of Fies and Schoen et al. for improving the filtering action of a Q-pole mass filter, because Fies et al. teach ( col. 1, lines 26-34 ) that in practice experience has shown that, despite of the predictions of the theoretical equations, that specifically, at low masses the potential difference must be smaller than at higher masses.

### **Conclusion**

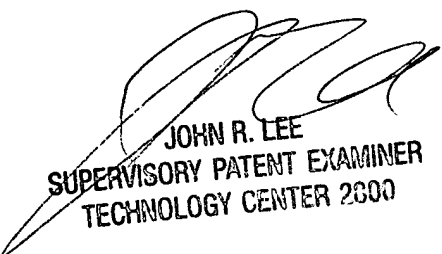
5. Hager discloses ( 6,028,308 ) a method of operating a mass spectrometer by applying an unbalanced RF voltage and low level DC voltage to the quadrapole electrodes, which improves the sensitivity and resolution of the system.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

Zia Hashmi

November 27, 2004

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800